ORGANISATIONS AS LEARNING SYSTEMS – "Living composition" as an enabling infrastructure.

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Research and teaching:

Multinational and knowledge-intensive (service) organizations, complexity and knowledge management. Innovation milieus.

Earlier experience include, e.g.:

- Visiting researcher and Associate research professor at Copenhagen Business School, Denmark
- Long experience as a management consultant in international consulting firms
- Systems analyst and systems manager in private and public sectors
- Technology and development director at Seinäjoki Polytechnics, Finland.

Maula, Marjatta (2006) *Organizations as Learning Systems. 'Living Composition' as an Enabling Infrastructure.* Elsevier Science, Advanced Series in Management. London: Elsevier.

- theoretical analysis concerning autopoiesis theory
- case study (four case firms)
- formulation of the Living Composition® model *)

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AUTOPOIESIS, LEARNING AND RENEWAL

LIVING COMPOSITION

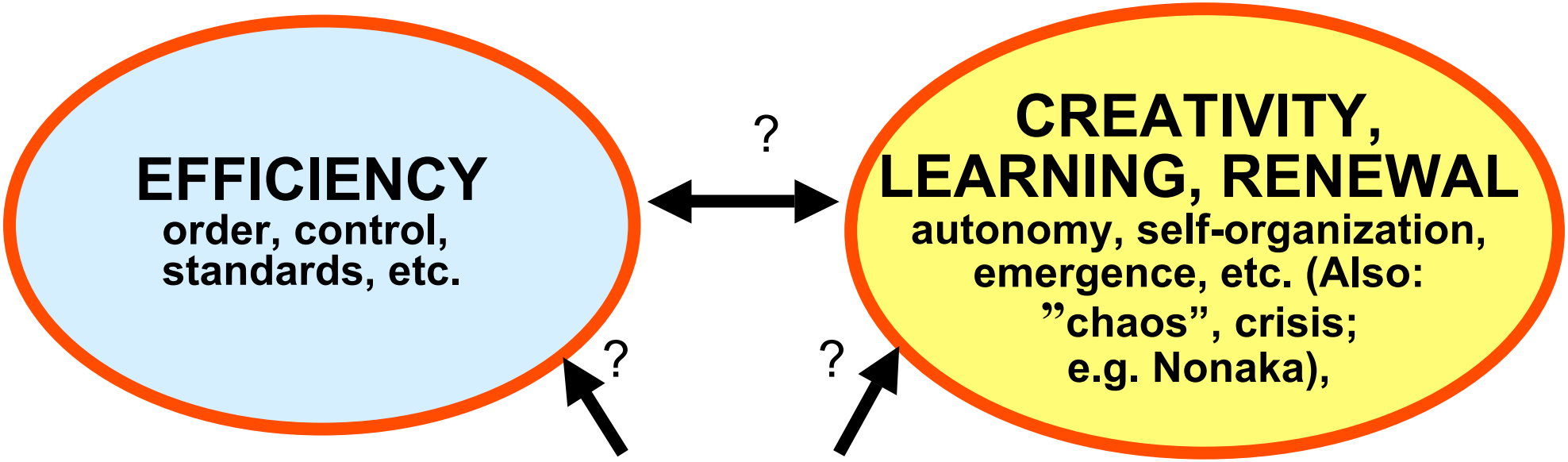
- sensing and memory
- components

EXAMPLES: CASE COMPANIES

PLATFORMS AND EVOLUTION MODELS

CONCLUSIONS AND IMPLICATIONS

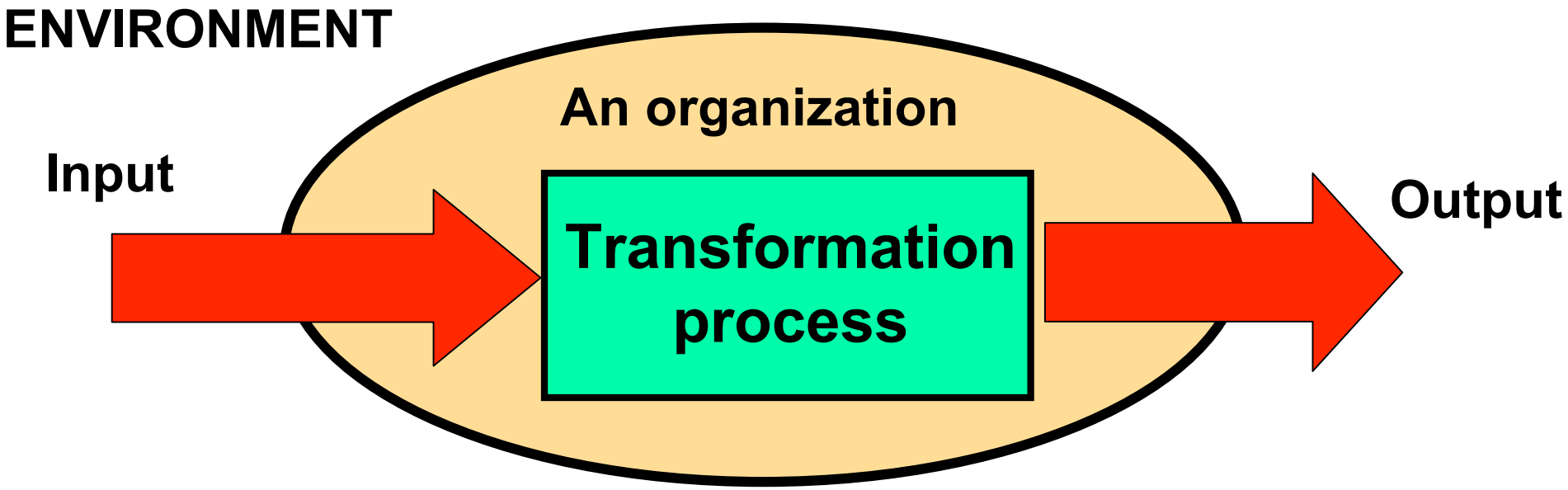
CLASSIC DILEMMA



Pressures: globalisation, competition, innovativeness, growth and profitability => How to:

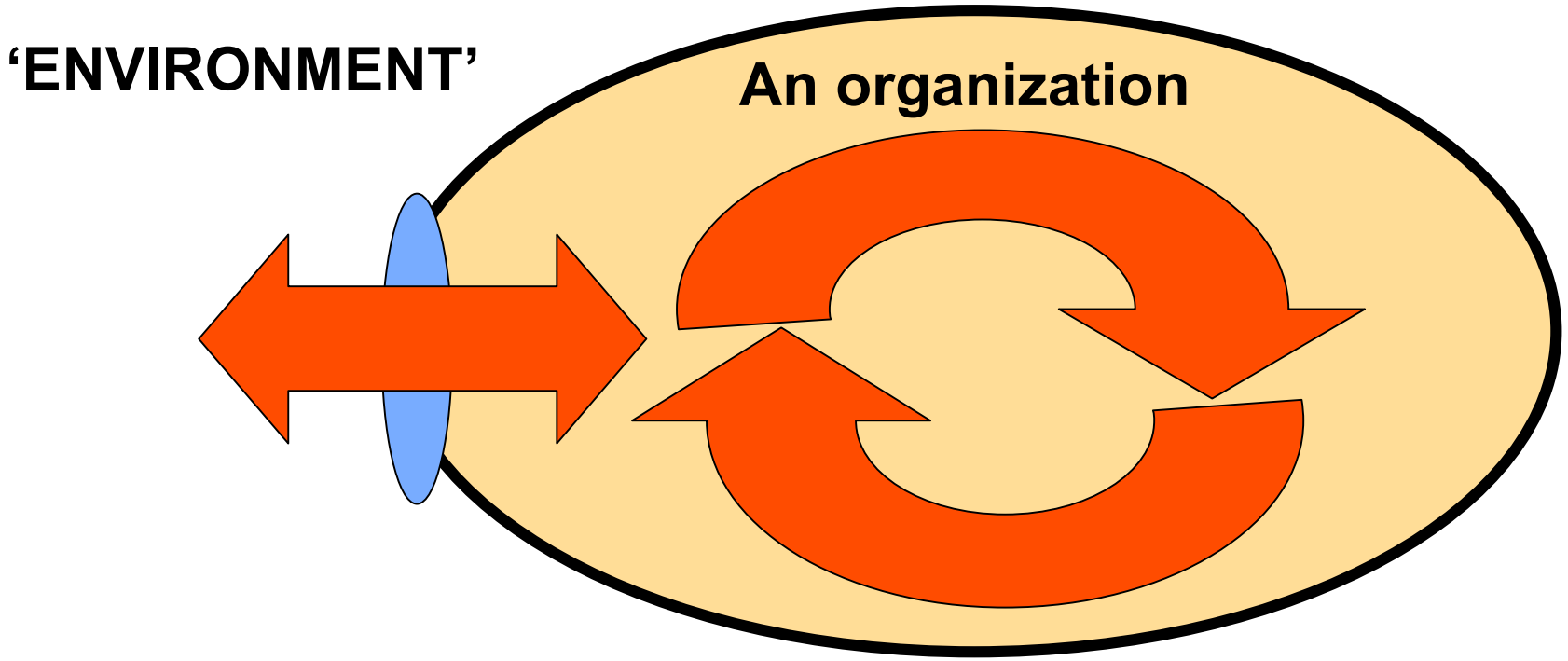
- **combine exploration and exploitation?**
- **design various organizational aspects?**
- **manage knowledge?**
- **implement ICT solutions?**
- **implement changes?**

(1) AN ORGANIZATION AS AN OPEN SYSTEM:
TRANSFORMS SOMETHING INTO SOMETHING ELSE

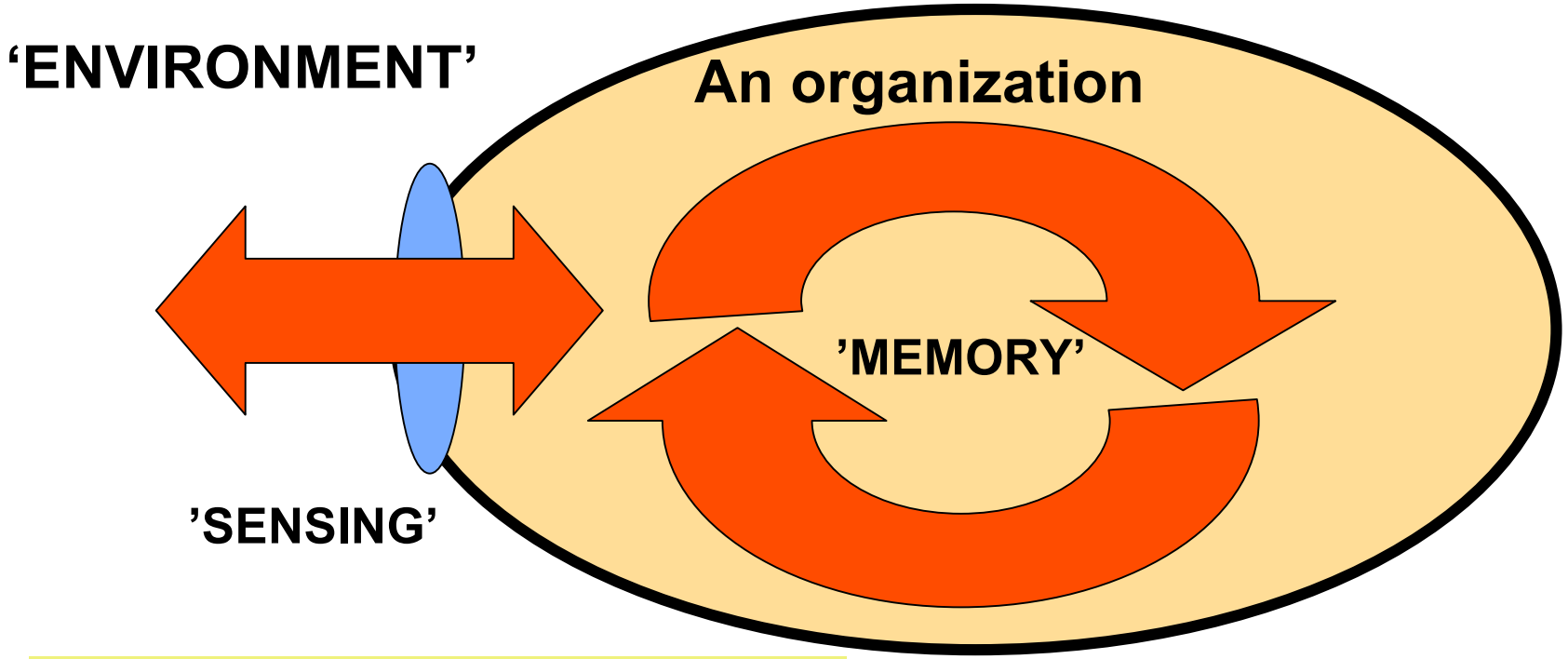


(2) AN ORGANIZATION AS AN AUTOPOIETIC SYSTEM:

TRANSFORMS ITSELF INTO ITSELF.
LEARNS, AND RENEWS ITSELF.
SELF-PRODUCTION.



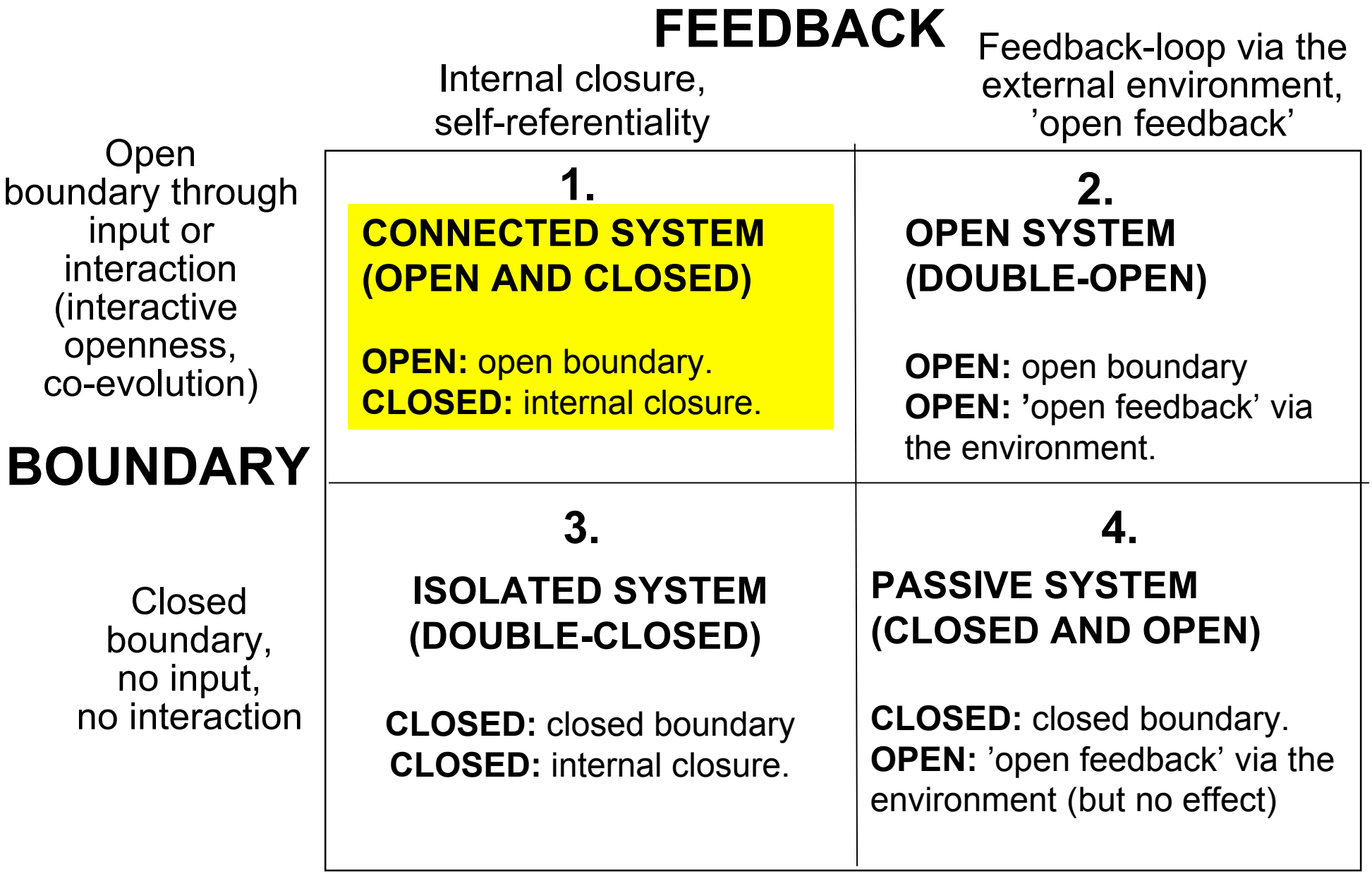
’LIVING COMPOSITION’, APPLICATION OF AUTOPOIESIS THEORY



‘OPEN’
- ‘Interactive openness’
- ‘Sensing’
- Access to new knowledge
- Coordination with the environment

and

‘CLOSED’
- ‘Self-referentiality’
- ‘Memory’
- Access to existing knowledge
- Maintains the functioning



Boundary and feedback: four resulting system alternatives.

LEVEL	DESCRIPTION	CHARACTERISTIC	TYPE OF RELATIONS	EXAMPLE
1	Structures and frameworks	Static, spatial patterns	*Topology* (where)	Bridge, mountain, table, crystal
2	Single mechanistic systems	Dynamic, pre-determined changes, processes	*Order* (when)	Solar system, clock, tune, computer
3	Control mechanisms, cybernetic systems	Error-controlled feed-back, information	*Specification* (what)	Thermostat, body temperature system, auto-catalytic system
4	Living systems	Continuous self-production	*Autopoietic* relations (First-order autopoiesis)	Cell, amoeba, single-celled bacteria
5	Multicellular system	Functional differentiation	*Structural coupling* between cells (Second-order autopoiesis)	Plants, fungi, moulds, algae
6	Organisms with nervous systems	Interaction with relations	*Symbolic, abstract* relations	Most animals (except, e.g., sponges)
7	Observing systems	Language, self-consciousness	Recursive, self-referential relations	Humans
8	Social systems	Rules, meanings, norms, power	*Structural coupling* between organisms (Third-order autopoiesis)	Families, organizations
9	Transcendental systems			

The hierarchy of complexity (Source: Mingers, 1997 based on Boulding, 1956).

’SIX-POINT KEY’

’Six-point key’ defines the requirements for an autopoietic system:

General criteria:

1. The system is a unity with identifiable boundaries.
2. The system can be decomposed into components in order to be analyzable as a ‘whole’.
3. The component properties are capable of satisfying certain relations that determine in the system the interactions and transformations of these components.

Specific criteria:

4. The system is contained within and produces a boundary.
5. The system is maintained by the interactions of its components.
6. The system’s modus operandi is a dynamic network of interacting processes of autopoietic ‘production’.

CHARACTERISTIC	DEFINITION (The term 'system' has been replaced by 'organization')
Autopoiesis (self-production)	An organization produces its own components and boundaries and renews itself in a way that allows the continuous maintenance of its integrity.
Identity	1. Being composed of components and their relationships. 2. Being distinguishable from other unities (e.g., from other organizations).
Components	Non-physical parts of the system that are continually produced by the organization.
Boundaries	Non-physical parts of the system that connect the system to its environment through reciprocal interaction. Here: Boundary elements. (roles and functions).
Triggers	Signals that are treated as perturbations, not as an input to the organization.
Structural coupling	Reciprocal interaction (mutual relationship or correspondence) with the environment. History of recurrent interactions leading to the structural congruence.
Interactive openness	The organization interacts with the environment and compensates the perturbations by improving knowledge (distinctions) and changing its 'structure'.
'Organizational closure' ('Operational closure')	Any change in the organization is a structural change. The product of the transformation is the very organization itself.
Self-referentiality	1. Accumulated knowledge affects the structure and operation of the organization. 2. The organization affects the (creation of) new knowledge.
Social coupling	Reciprocal interaction (communication) by using language.

Basic characteristics of a self-producing (autopoietic) system. (Based on Maturana and Varela, 1980, 1987; Mingers, 1995, 1997; von Krogh and Roos, 1995; non Krogh et al., 1996a).

AUTOPOIESIS, LEARNING AND RENEWAL

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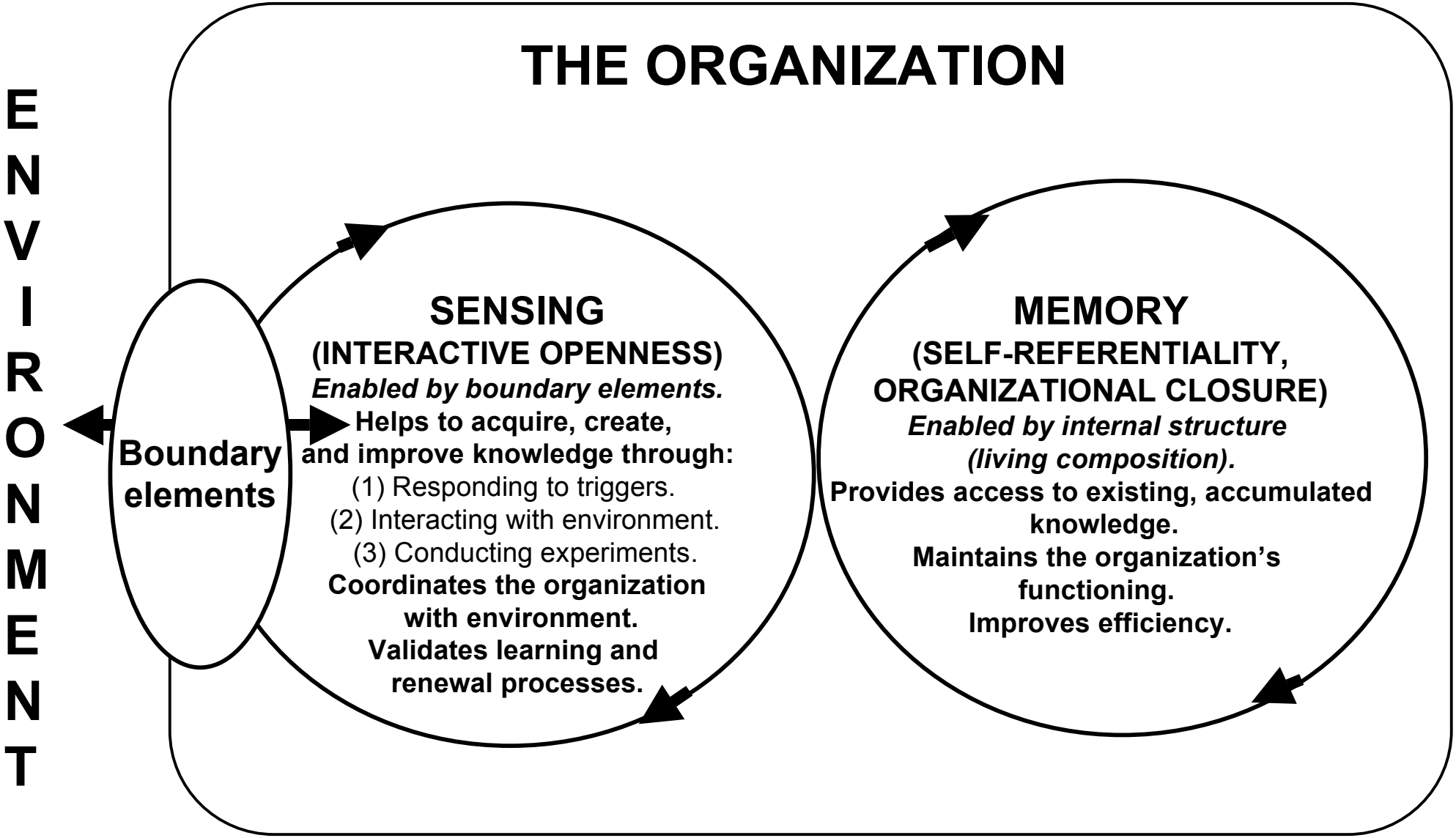
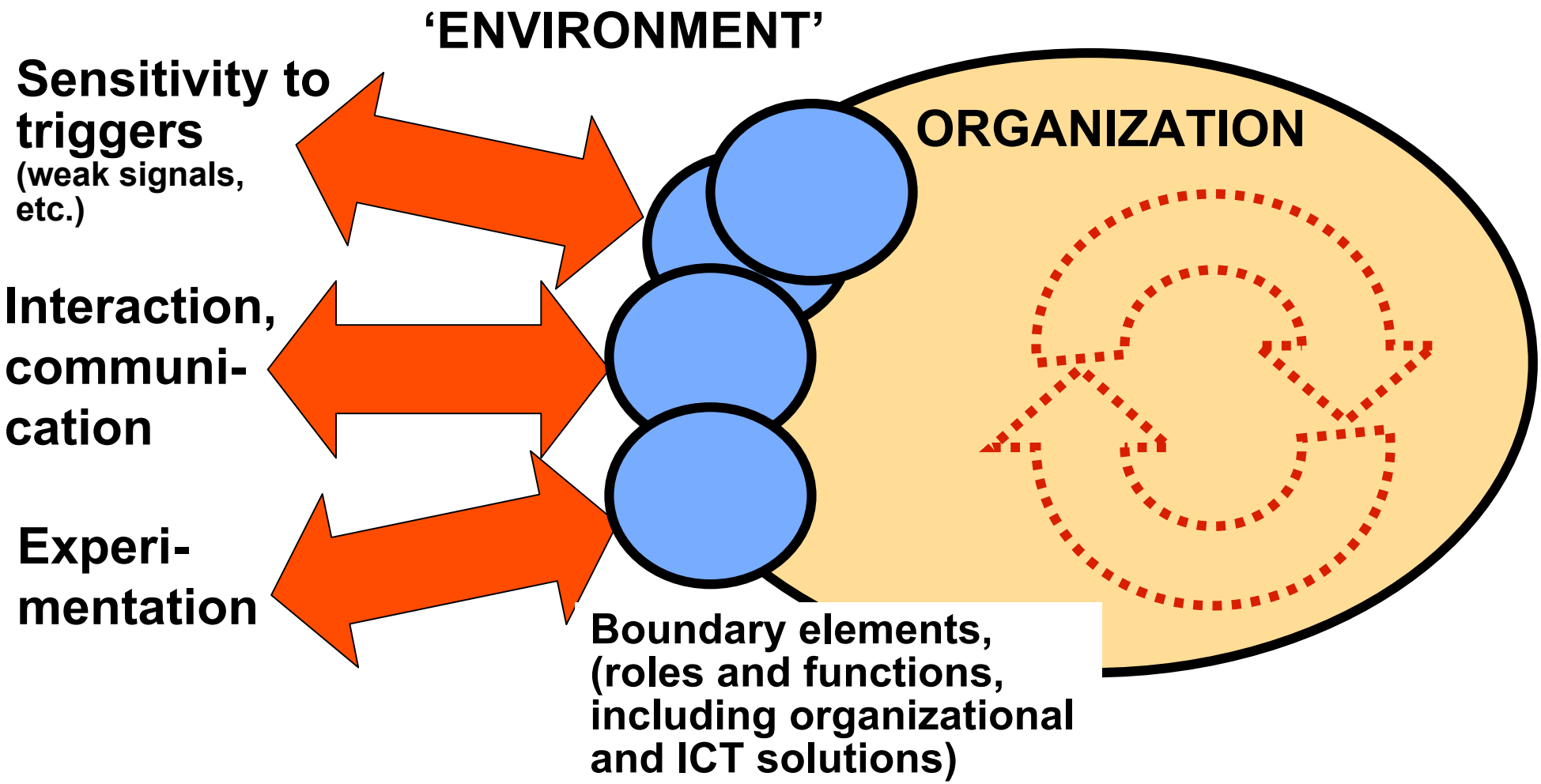
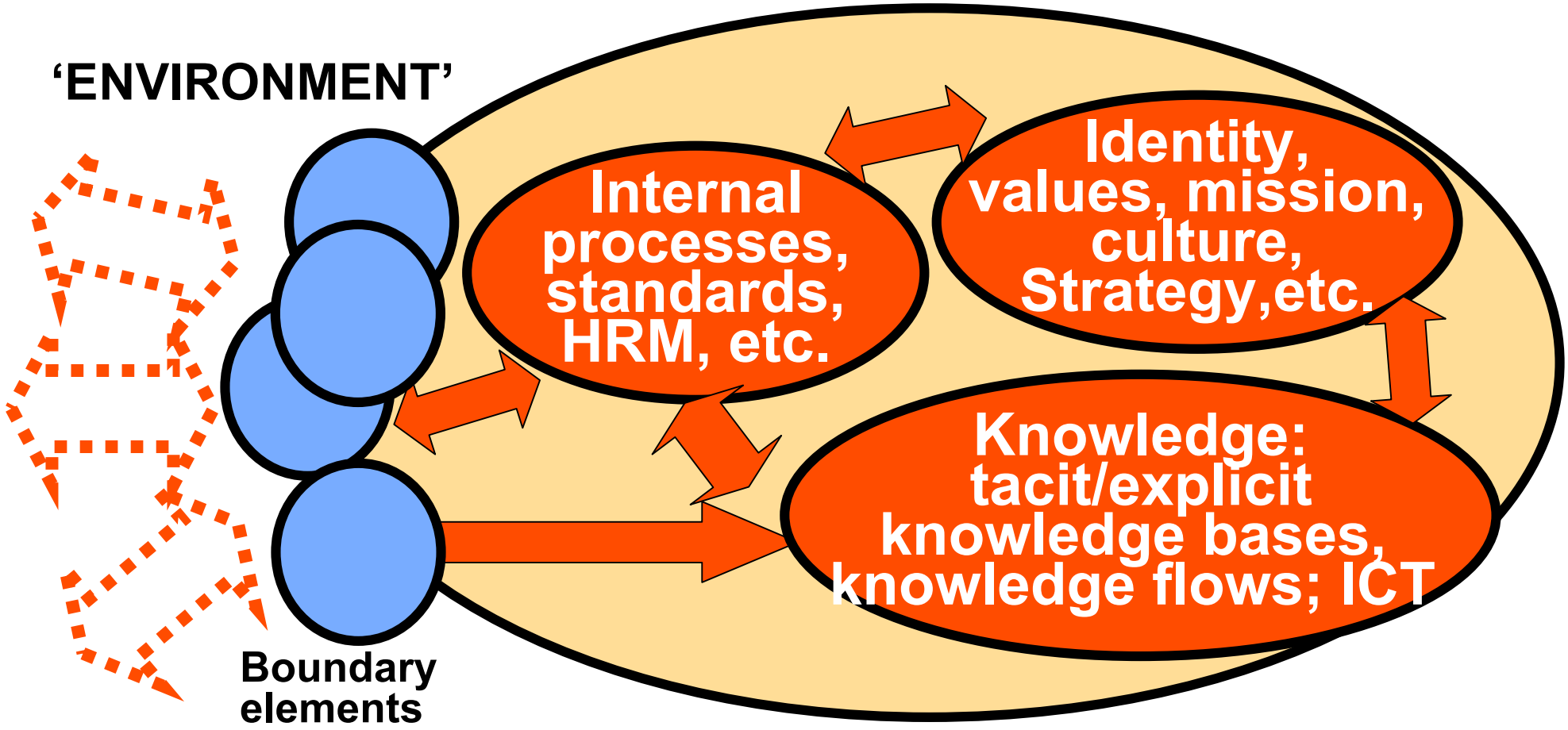


Sensing and memory - The two major knowledge flows of a living organization.

‘SENSING’ (interactive openness)



MEMORY (self-referentiality, access to existing knowledge)
Embedded in several aspects of the organization



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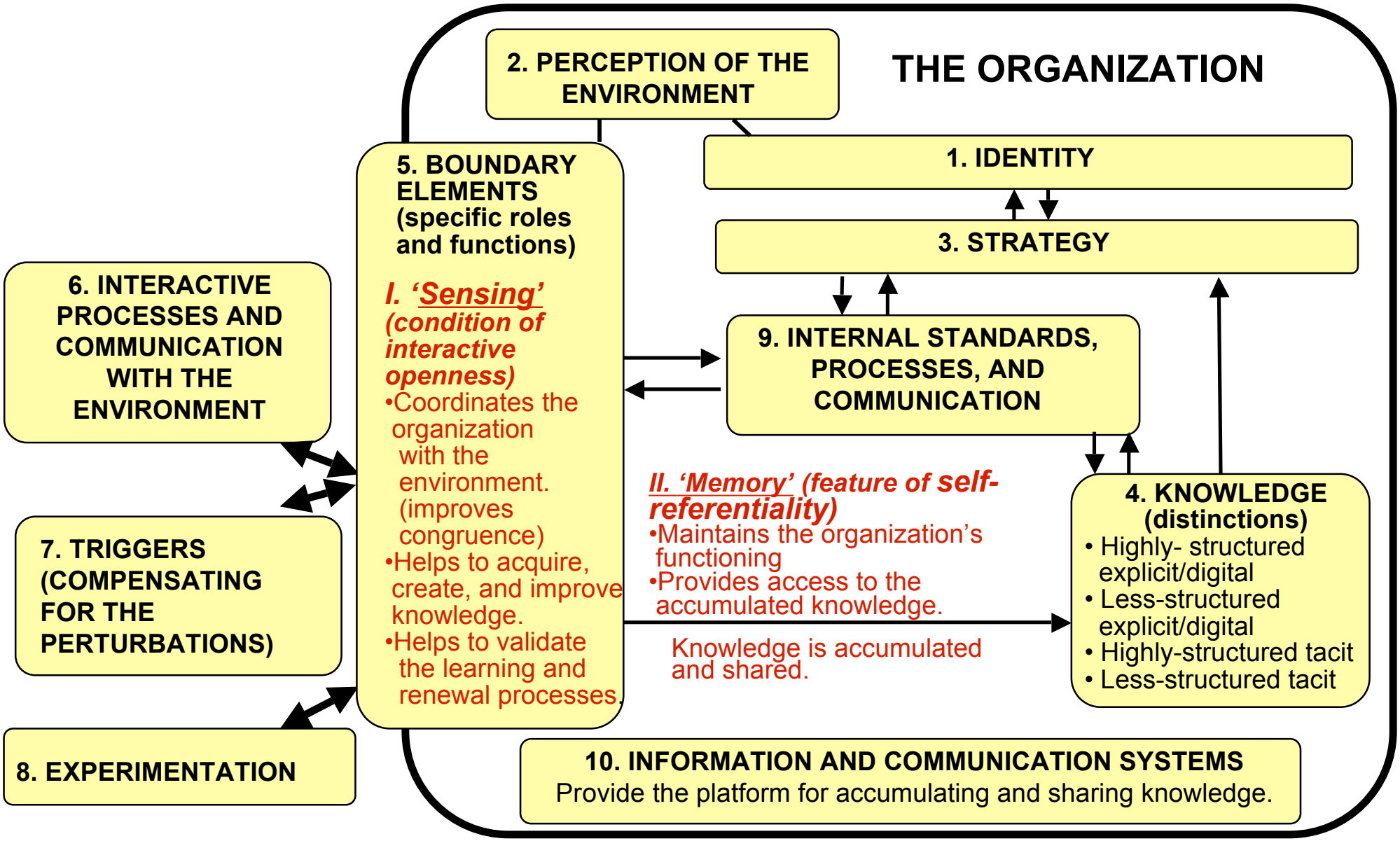

Living composition of an organization : Ten strategic non-physical components and two major knowledge flows

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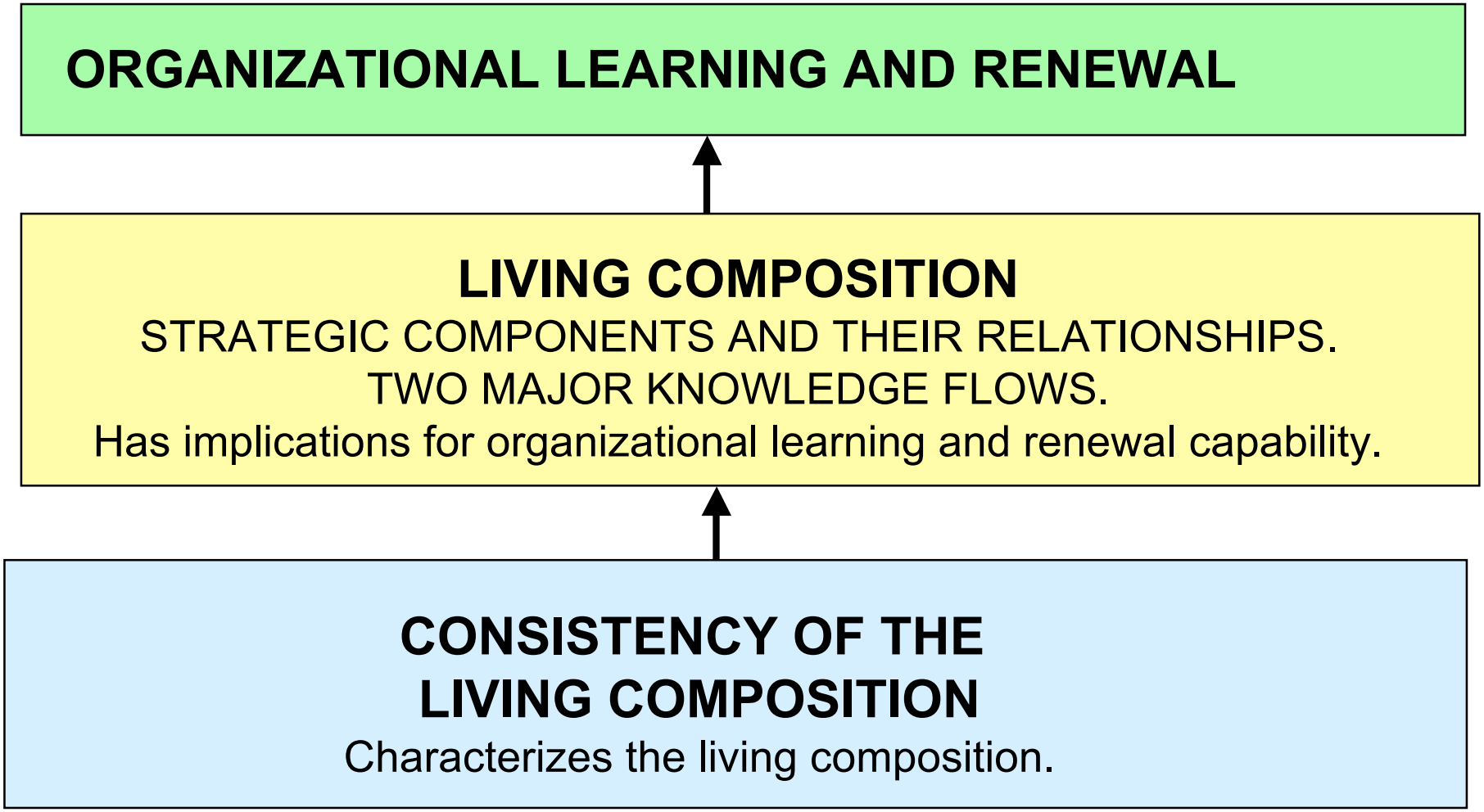

The consistency of living composition influences organizational learning and renewal.

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ERNST & YOUNG
MANAGEMENT CONSULTING

ERNST & YOUNG (MANAGEMENT CONSULTING)

Big multinational (1989 / merger).

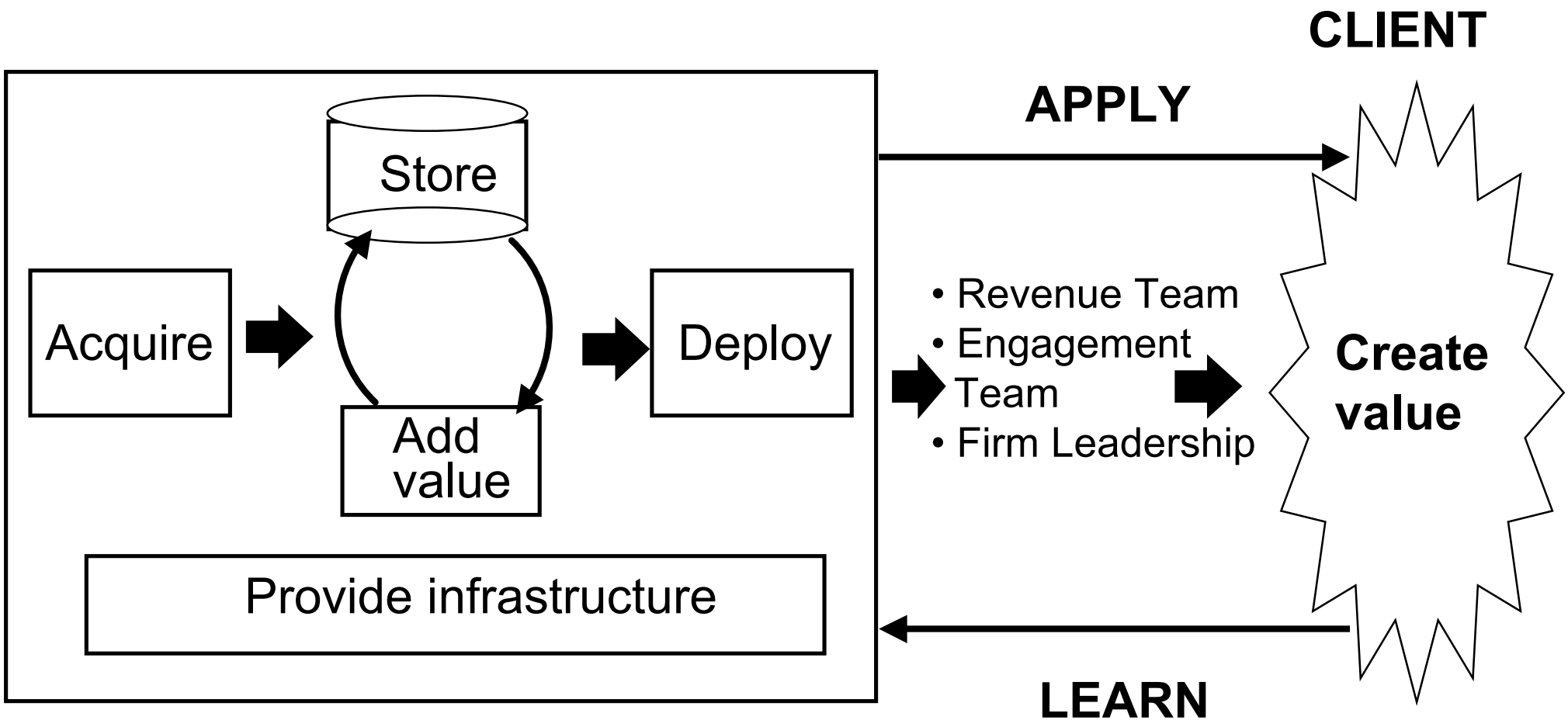
660 offices (incl. auditing) in 173 countries.

72.000 employees.

Methodology driven consulting.

A ’learning organization’.

Extensive knowledge sharing and knowledge management system.



Ernst & Young Knowledge Process Landscape Model.

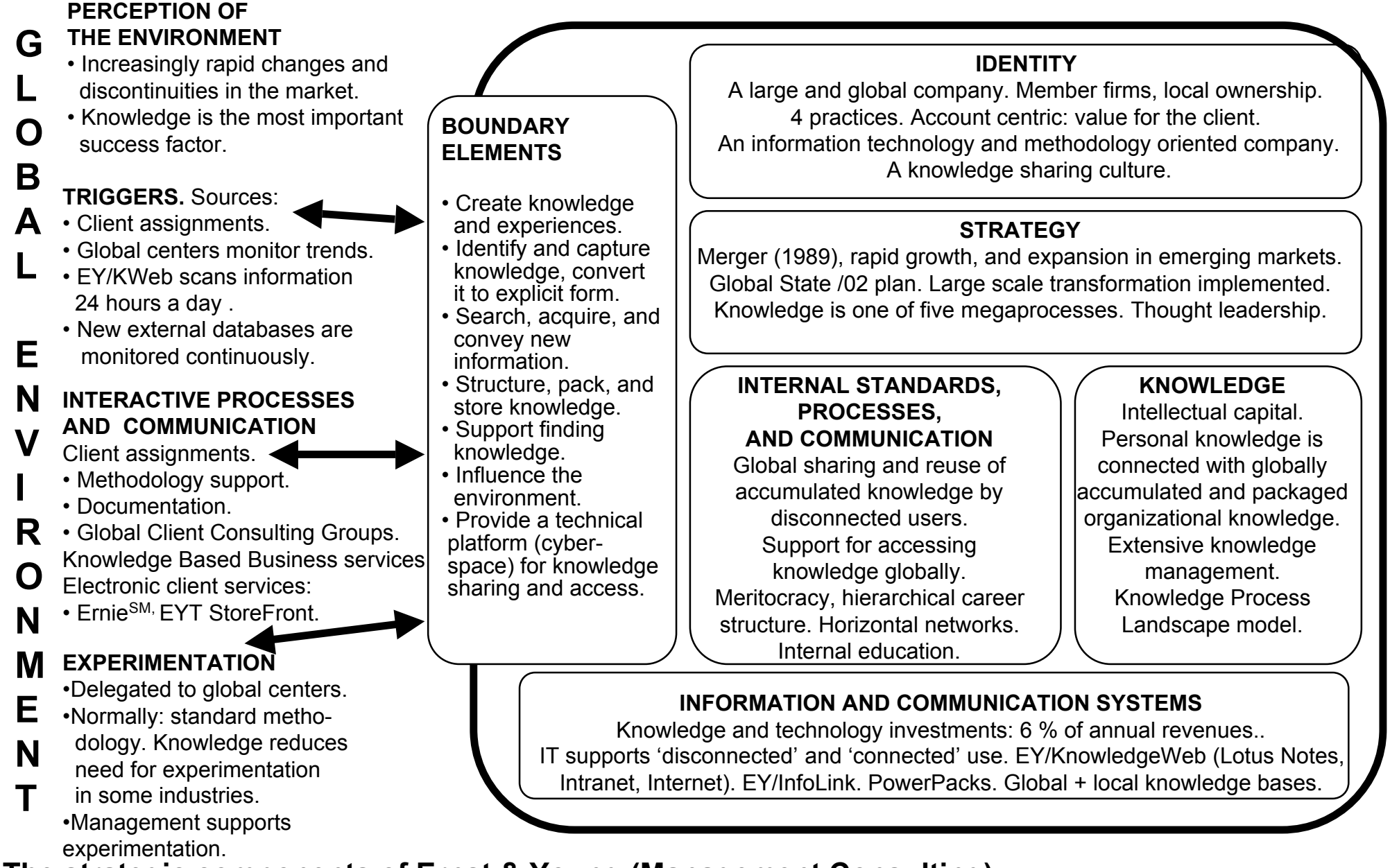
ERNST & YOUNG (MANAGEMENT CONSULTING)

Boundary elements, e.g.:

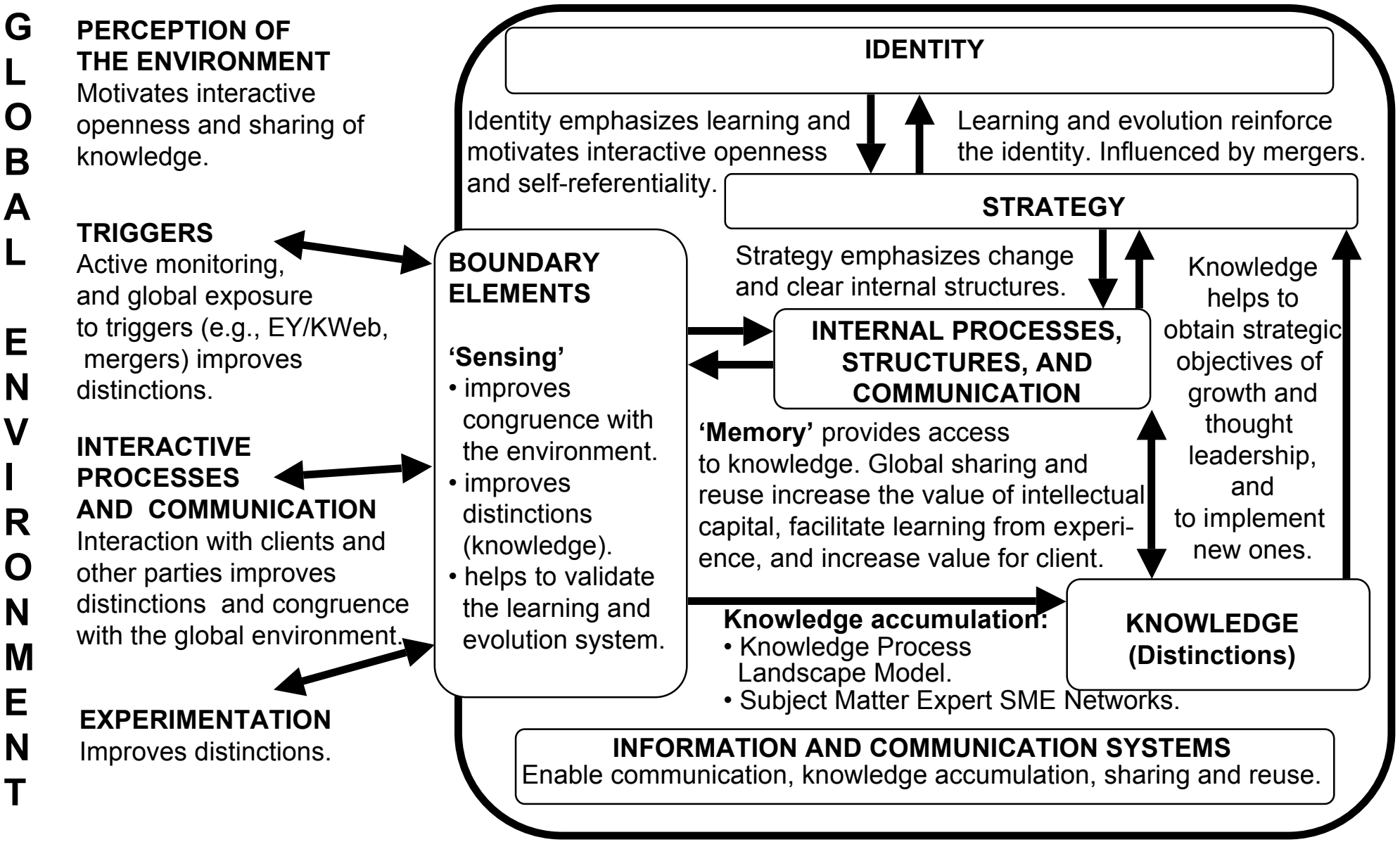
- Consultants
- Ernie ’virtual consultant’
- Centers for Business Knowledge
- EY Knowledge Services Group
- ’Cybrarians’
- Knowledge officers/managers/stewards/ coordinators etc.

EY Infolink, scanning of external information

Accumulation of knowledge in 150 PowerPacks and 470 knowledge bases



The strategic components of Ernst & Young (Management Consulting).



Ernst & Young (Management Consulting) as a living composition.

The KaosPilots and KaosManagement

The KaosPilots and KaosManagement

A small value-chain:

- The KaosPilots: education (1982/1991-)
- KaosManagement: consulting (1993-)

Offices in Denmark, USA, South Africa

13 employees, and an extensive network of various kinds of partners

Specialists in ’navigating in chaos’

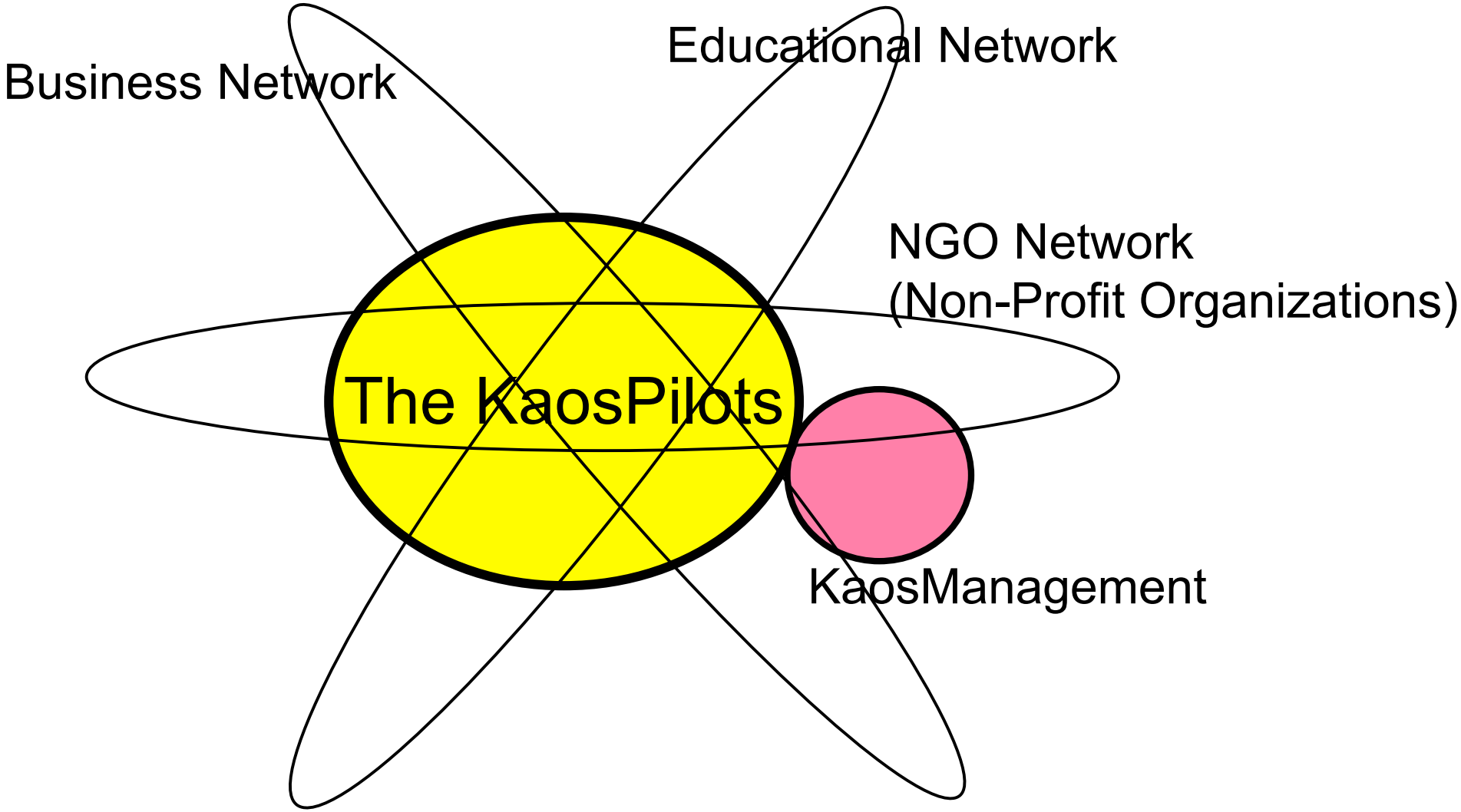
Innovative consulting, education and project work.

A unique institutionalized platform for experiments

Market-oriented

Contributors to Scandinavian leadership model

The KaosPilots' networks



The KaosPilots' networks, specified

The KaosPilots and KaosManagement

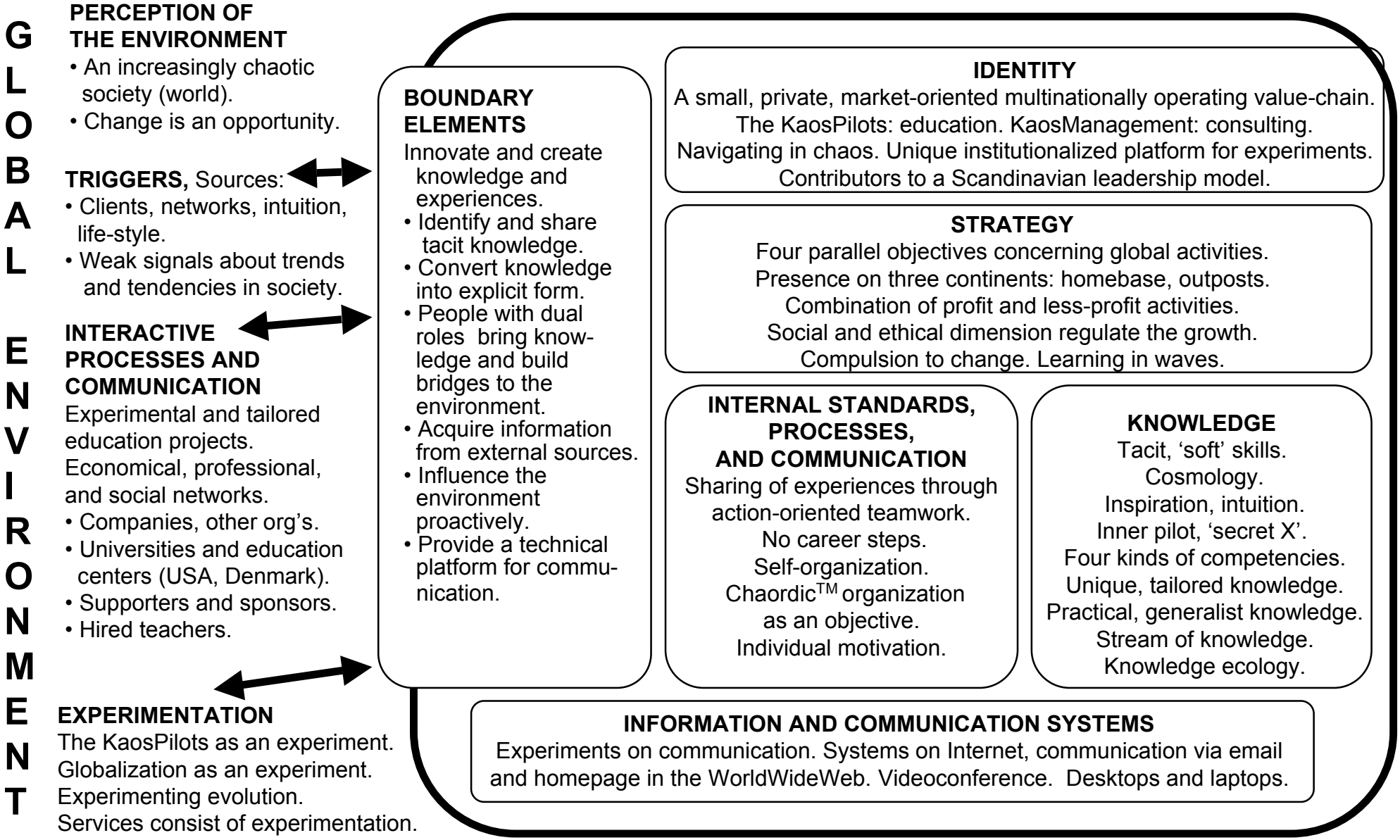
Scanning of trends and tendencies, ’closer to MTV thanMBA’

Experimentation, intuition, special competence structure

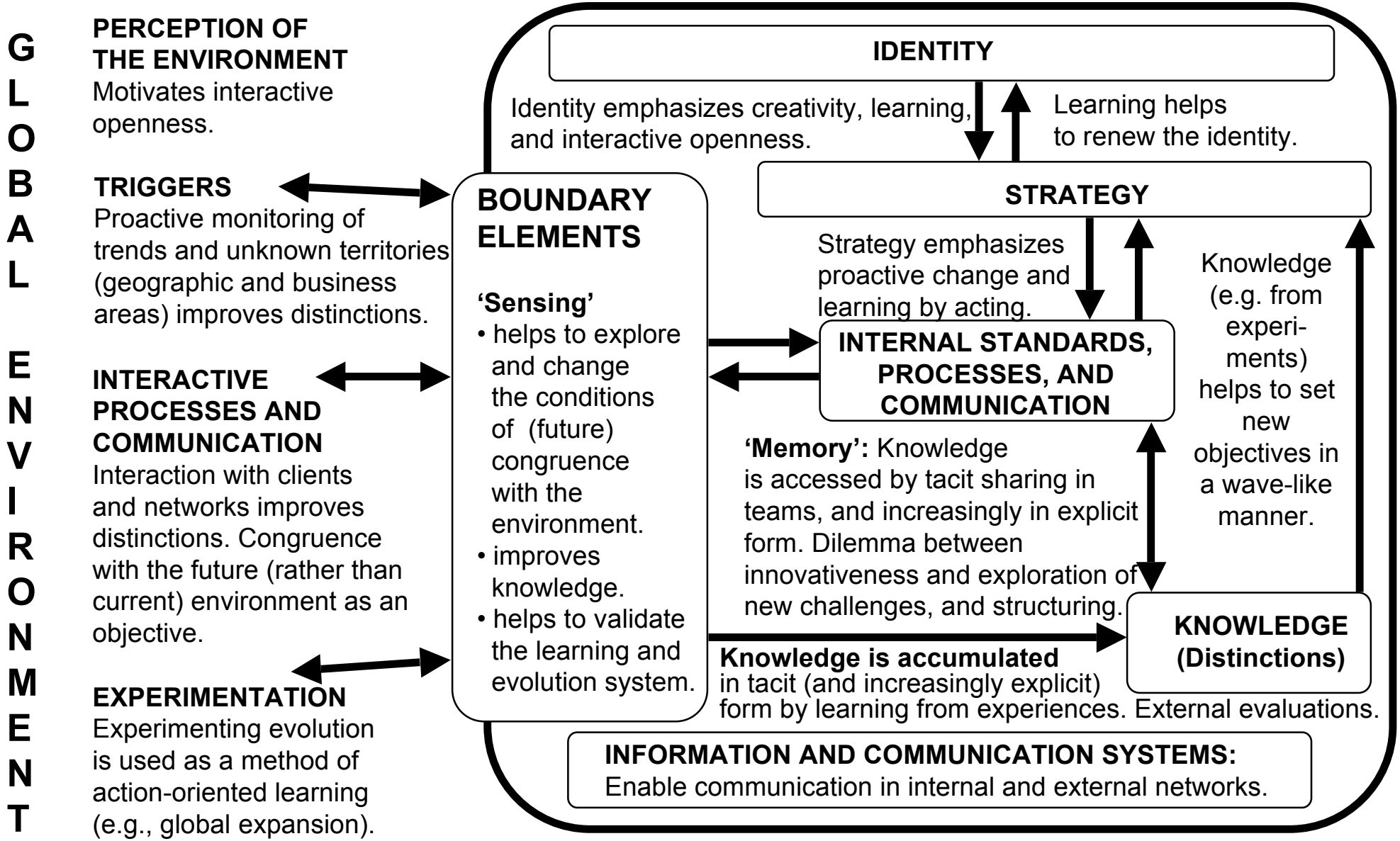
Chaordic organization; learning by acting

Boundary elements, e.g.:

Kaospilots (students)
Freelancers (consultants, teachers)
Company Club
Other extensive and influential networks



The strategic components of The KaosPilots and KaosManagement.



The KaosPilots and KaosManagement as a living composition.

ARTHUR D. LITTLE (EUROPE)

ARTHUR D. LITTLE (EUROPE)

Big multinational.

Founded in 1886. ’Oldest consulting firm in the world’.

52 offices in 30 countries. Over 3000 employees (the whole company).

Expert (and methodology) driven consulting.

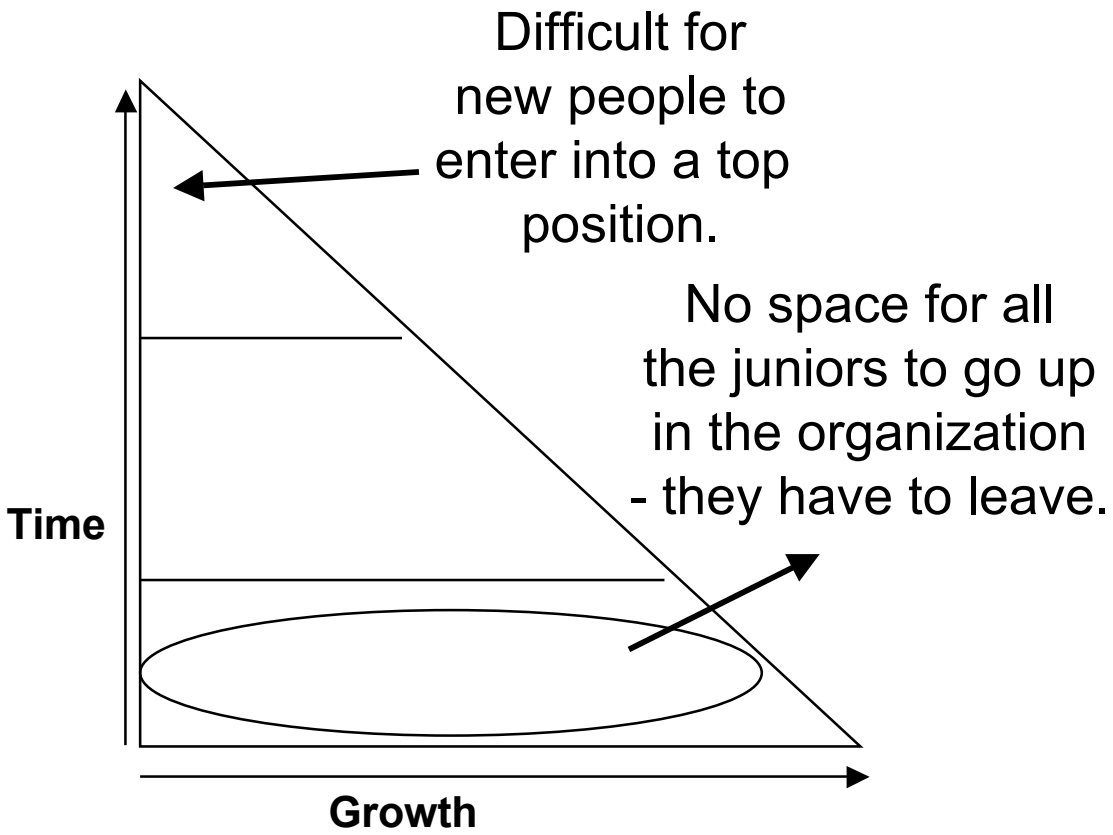
Implementing stage (during the interviews of the study)

- Organizational transformation
- Knowledge sharing system

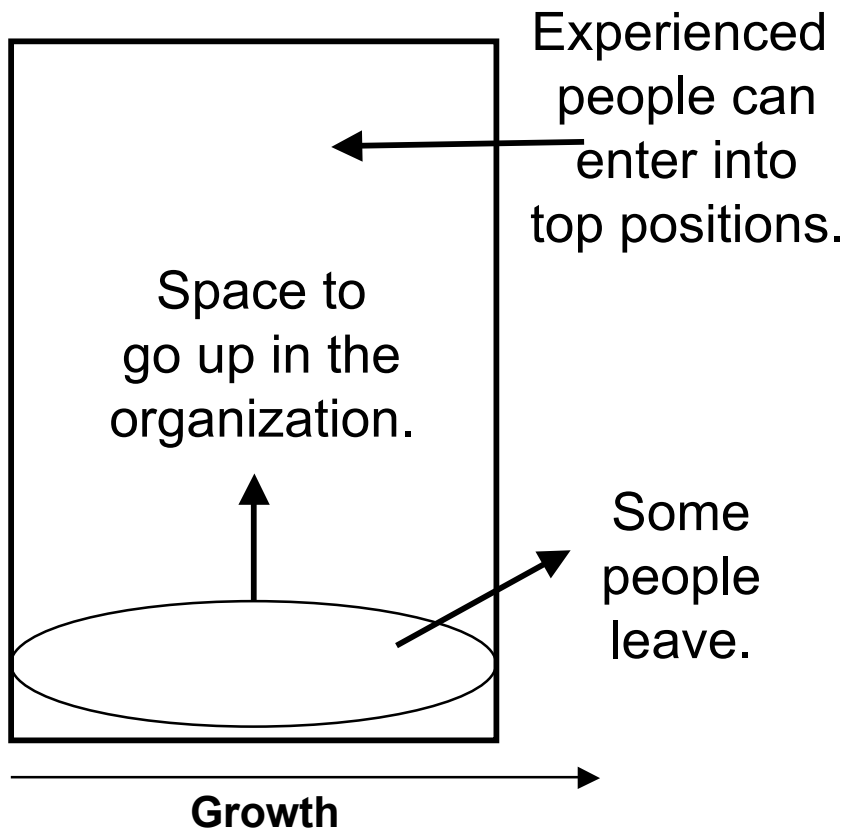
Innovations side-by-side with the clients

Accumulation of expertise in the specialists

KEY DIFFERENTIATOR: Proportion between senior and junior people.

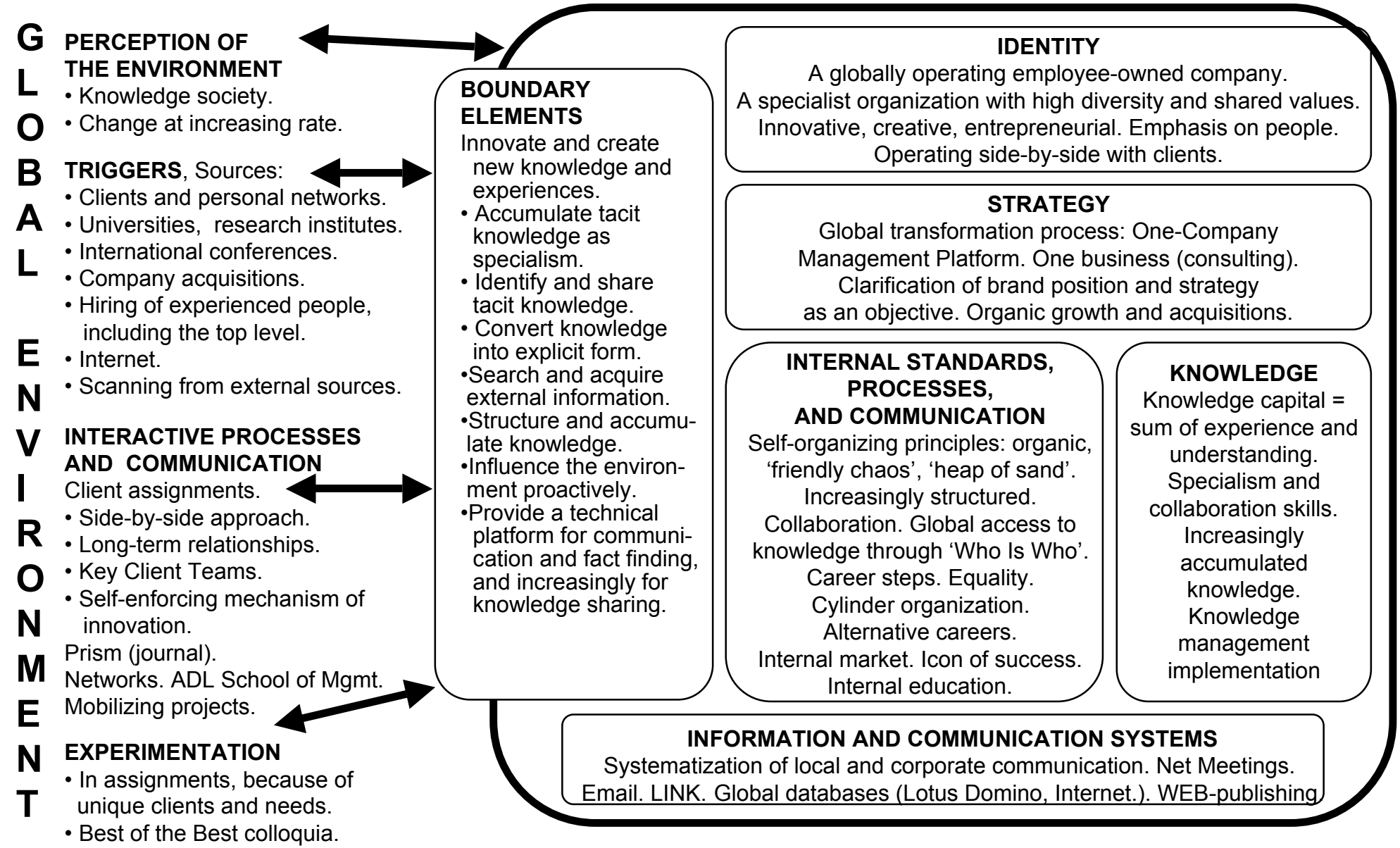


PYRAMID ORGANIZATION
(many consulting firms)



CYLINDER (RECTANGULAR) ORGANIZATION
(Arthur D. Little)

Career opportunities in pyramid and cylinder organizations (Source: Arthur D. Little).



The strategic components of Arthur D. Little (Europe).

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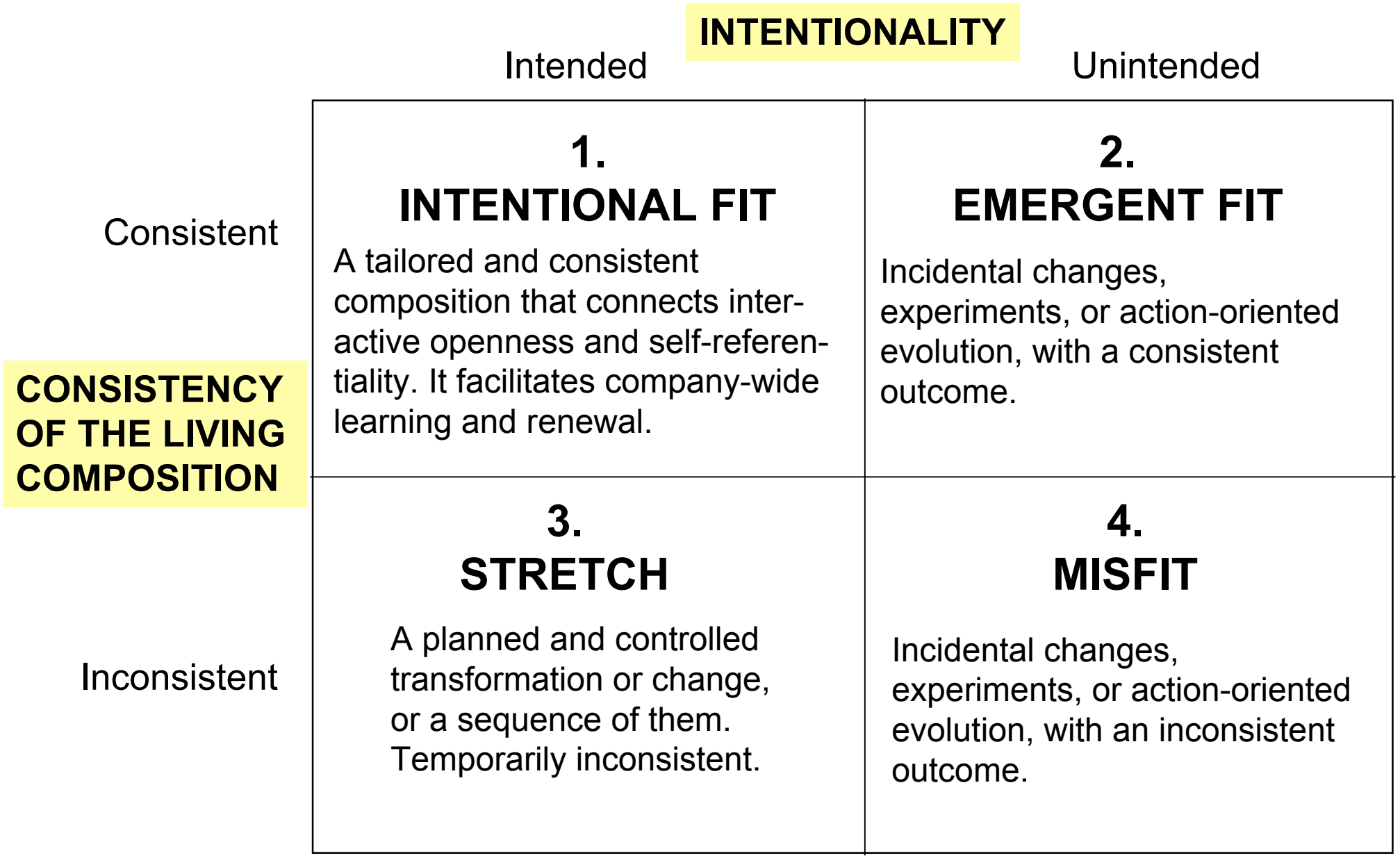
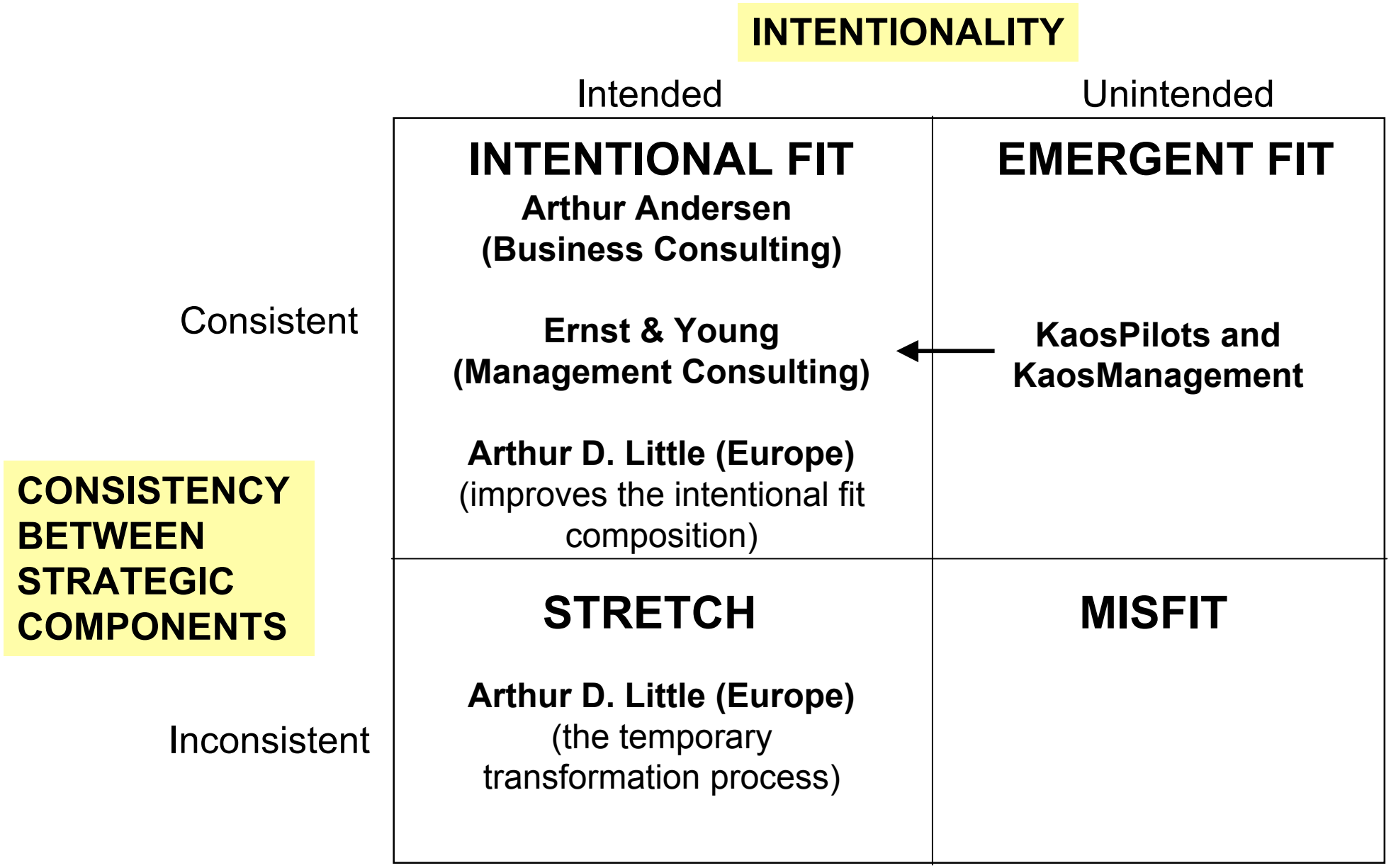


The four *consistency/intentionality platforms* concerning the living composition.



Consistency/intentionality platforms. **The compositions of the case organizations.**

‘MEMORY’, SELF-REFERENTIALITY
Accessing earlier experiences and knowledge, and learning from them.

‘SENSING’, INTERACTIVE OPENNESS
Interaction and co-evolution with the environment.

	Memory is utilized	Memory is not utilized
Sensing is utilized	**1a. SYSTEMATICALLY EXPLORING AND ACCUMULATING ORGANIZATION** **1b. ORIGINAL, INNOVATIVE ORGANIZATION**	**2. EXPLORING AND ADAPTING ORGANIZATION (‘ad hoc’)**
Sensing is not utilized	**3. ISOLATED ORGANIZATION**	**4. PASSIVE ORGANIZATION**

The evolution models **concerning the living composition.**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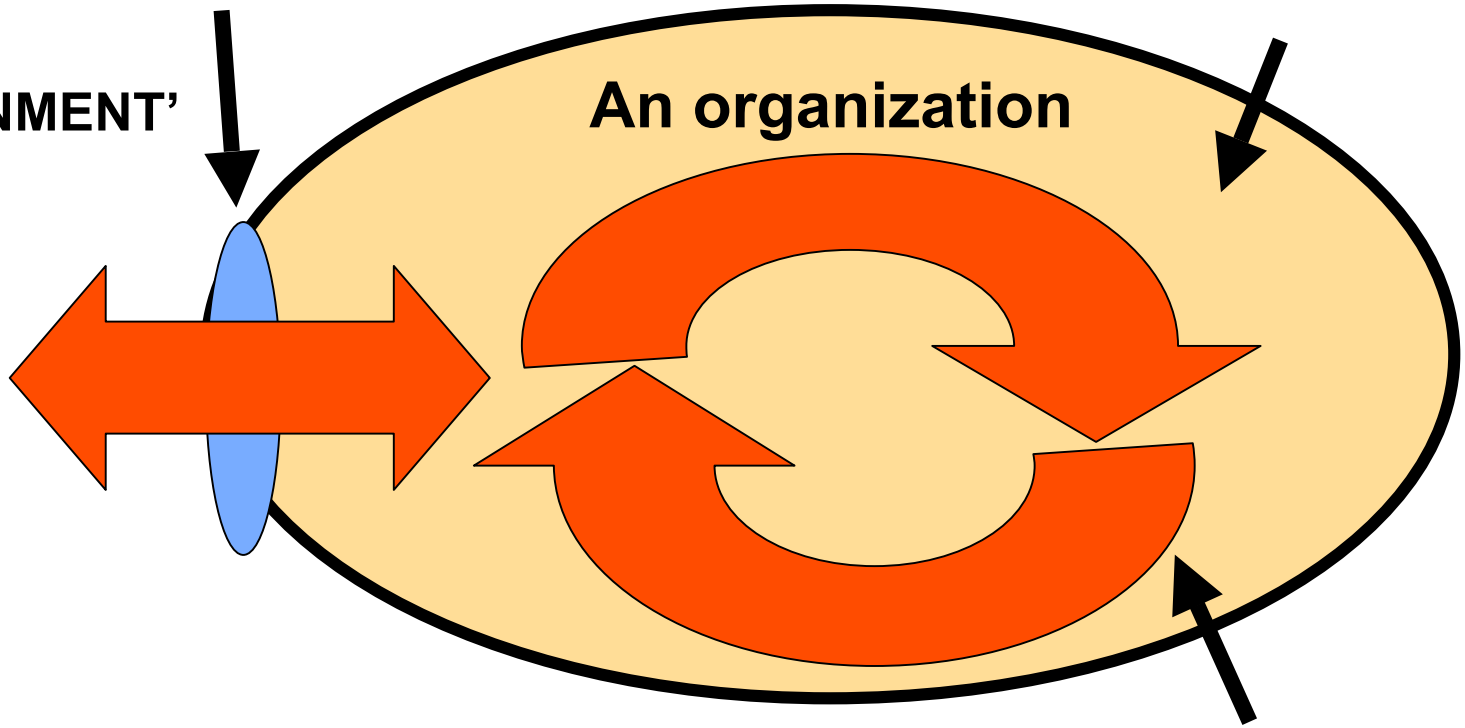
(1) New knowledge through boundary elements. Exploration of the external environment and co-evolution with it.

(2) Order AND new knowledge through access to memory and continuous maintenance of the strategic components (internal structure = living composition).



THE LIVING COMPOSITION FACILITATES CREATIVITY AND EFFICIENCY. AN ATTEMPT TO SOLVE THE CLASSIC DILEMMA.

(3) Internal self-organization in communities, networks etc.: facilitates creativity and creates new knowledge and capabilities.

	PROACTIVE INTERPRETATION	PASSIVE INTERPRETATION
BOUNDARY	Connects an organization to its environment through reciprocal interaction.	Separates an organization from its environment.
RELATIONSHIP TO THE ENVIRONMENT	Interactively open towards the environment. An organization learns and renews itself through experimentation, reciprocal Interaction, and exposure to triggers from the environment. It selects autonomously whether to change or not.	Closed (isolated) towards the environment. An organization cannot change itself, and the environment cannot directly instruct the organization.
KNOWLEDGE AND SELF-REFEREN-TIALITY	Enable learning from earlier experience.	Limit learning.
INTERNAL 'STRUCTURE' (LIVING COMPOSITION)	Provides an enabling infrastructure for learning and continuous renewal.	Is a source of rigidity.

Proactive and passive interpretation of living organizations.

DIVERSITY OF LIVING SYSTEMS: DIFFERENCES IN COMPOSITION, SENSING, MEMORY, KNOWLEDGE FLOWS. The same applies for organizations.

THE PROCESS OF IMPROVING AN ORGANIZATION'S LIVING COMPOSITION

STEP 1: CREATE AWARENESS AND COMMUNICATE THE NEED FOR CHANGE

- •Create shared awareness of the principles of living organizations.
- •Identify the current position of the organization on the consistency/intentionality platform and evolution model.
- •Describe preliminary strengths, problems, development needs, and objectives.

STEP 2: ANALYZE THE STRATEGIC COMPONENTS

STEP 3: ANALYZE THE KNOWLEDGE FLOWS AND KNOWLEDGE PROCESSES

- • two major knowledge flows: (1) Sensing, (2) Memory
- • four knowledge processes: (1) Highly-structured explicit/digital knowledge, (2) Less-structured explicit/digital knowledge, (3) Highly-structured tacit knowledge, (4) Less-structured tacit knowledge.

STEP 4: DESCRIBE THE CURRENT LIVING COMPOSITION OF THE ORGANIZATION AND ANALYZE ITS DYNAMICS

.

STEP 5: DESIGN AND IMPLEMENT THE IMPROVED OR NEW LIVING COMPOSITION

STEP 6: UTILIZE, MEASURE, AND IMPROVE THE LIVING COMPOSITION

ACADEMIC AND THEORETICAL CONTRIBUTIONS

'Living composition' model attempts to be a theoretically justified and structured interpretation of autopoiesis theory in the organizational context.

- identification of **internal structure** and **components**
- identification of **boundaries**
- new, **proactive** interpretation of **openness and closure**
- interpretation of organizational **complexity** in terms of **enabling infrastructure** and continual, dynamic changes (and not only chaos).
- identification of the **diversity** of firms (platforms)
- identification of the importance of **intentionality and consistency** in organizational design and evolution

OTHER ACADEMIC CONTRIBUTIONS

'Living composition' model serves as a good tool for teaching

Example 1: The university students have analyzed in teams about 25 firms representing various industries. Their work is based on:

- two lectures
- analysis of 2-4 cases about a firm as ’living composition’.
- introductory information to the managers
- relatively short interviews of managers in teams.

The results are very good and indicate that the students can create a good picture of the firm and identify needs for further development.

Example 2: Based on about 3-4 hours’ lecture and some written material, about 40 MBA-students have analyzed their employer firms. The results are mainly very good, and indicate that the students can better understand the structure and functioning of their firm.

OTHER ACADEMIC CONTRIBUTIONS

'Living composition' model serves as a good tool for organizing research.

Example: Together with other models and concepts, it helps to identify objects for research so that they constitute a larger picture of the functioning of firms.

CONTRIBUTIONS TO CONSULTANTS AND BUSINESS MANAGERS

New shared framework for managers, consultants and the whole organization.

'Living composition' model helps to:

- analyze and understand an organization's enabling organizational infrastructure in a structured way in private and public sectors
- understand the differences between organizations, and to compare them with each other.
- cope with size, growth and technological level
- identify and prioritize development needs
- develop managerial and consulting skills.

CONTACT INFORMATION

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